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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/611,247	07/07/2000	Jianshe Tang	3899/390001	9312

32588 7590 11/19/2003

APPLIED MATERIALS, INC.  
2881 SCOTT BLVD. M/S 2061  
SANTA CLARA, CA 95050

EXAMINER

ELEY, TIMOTHY V

ART UNIT	PAPER NUMBER
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3724

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/611,247

Applicant(s)

TANG ET AL.

Examiner

Timothy V Eley

Art Unit

3724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5,9-15,17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,9,10,12 and 19 is/are rejected.
- 7) ☒ Claim(s) 11,13,14 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 22.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

*Allowable Subject Matter*

1. The indicated allowability of claims 1-5,9,10,12, and 19 is withdrawn in view of the combination of Custer et al and Hudson et al. A rejection based on these references follows.

*Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5,9,10,12, and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Custer '955 et al in view of Hudson '806 et al.

a. Custer et al disclose a carrier head, comprising: a retaining ring(156); a pressurizable chamber; and a fluid-tight flexible membrane(190) with an inner surface that forms a boundary of the pressurizable chamber and a "rough" outer surface to press a substrate against a polishing surface.

b. Custer et al do not disclose that the outer surface is rougher than the inner surface in order to make the membrane sufficiently rough so that the substrate does not move relative to the membrane.

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c. Hudson et al disclose that it is well known in the art to make a flexible membrane(or flexible backing member 34) from a "high friction material" such that a substrate does not move relative to the membrane(see column 2, lines 56-64).

d. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Custer et al apparatus by manufacturing the membrane 190 from a "high friction material" which is sufficiently rough such that the substrate does not move relative to the membrane as taught by Hudson et al, in order to insure accurate planarizing of the substrate. Whether or not the outer surface of the membrane is rougher than the inner surface would have been an obvious matter of choice and structural design to one having ordinary skill in the art at the time the invention was made, since clearly the purpose of the rough outer surface is to prevent movement of the substrate relative thereto, and the relative roughness of the inner and outer surfaces is not the deciding characteristic as to whether or not the substrate moves relative to the membrane; the deciding characteristic is the roughness of the outer surface only. See specifically applicant's specification on page 6, lines 21-29, which clearly indicates that the roughness of the outer surface is the important feature for preventing relative movement between the substrate and the membrane. I.e. the lower surface of the membrane is provided with a fairly high co-efficient of friction,

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the membrane can be formed of a material that has a high friction coefficient, etc.

e. Regarding claim 4, applicant's broad recitation of "features" to increase its friction coefficient is seen to be met by the combination of Custer et al in view of Hudson et al, since clearly any surface which exhibits friction must have some features which may increase its friction coefficient.

#### ***Allowable Subject Matter***

4. Claims 11,13,14, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Spector discloses a bladder having a rough surface. Bonora discloses a membrane for retaining a substrate without slippage.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy V Eley whose telephone number is 703-308-1824. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan N Shoap can be reached on 703-308-

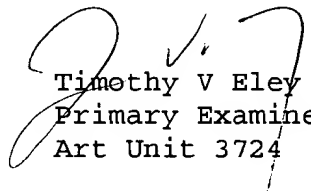
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1082. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

  
Timothy V Eley  
Primary Examiner  
Art Unit 3724

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